

CLAIMS

1. A liquid ejecting apparatus comprising:

a movable ejection head for ejecting a liquid;

5 a feed mechanism for feeding a medium; and

detecting means for detecting a position of an edge of said medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the position of said edge with said detecting means, 10 an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid onto said medium from said ejection head that is moving;

wherein, in accordance with the position of said edge that has been detected, said liquid ejecting apparatus changes at least 15 either one of a start position and an end position for ejecting the liquid from said ejection head that is moving; and

wherein, if the position of said edge was not detected, said liquid ejecting apparatus sets said start position or said end position to a position that has been established in advance.

20 2. A liquid ejecting apparatus comprising:

a movable ejection head for ejecting a liquid;

a feed mechanism for feeding a medium; and

25 detecting means for detecting a position of an edge of said medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the position of said edge with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid onto said medium from said 30 ejection head that is moving;

wherein, in accordance with the position of said edge that has been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection head that is moving; and

35 wherein, if the position of said edge was not detected, said

liquid ejecting apparatus determines said start position or said end position based on a position of said edge that was detected in the past.

- 5 3. A liquid ejecting apparatus according to claim 2,
 wherein, if the position of said edge was not detected, said
liquid ejecting apparatus determines said start position or said
end position based on a plurality of positions of said edge that
were detected in the past.

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4. A liquid ejecting apparatus according to claim 3,
 wherein, if the position of said edge was not detected, said
liquid ejecting apparatus obtains the position of said edge that
was not detected from the plurality of positions of said edge that
15 were detected in the past, and determines said start position or
said end position based on the position of said edge that has been
obtained.

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5. A liquid ejecting apparatus according to claim 4,
 wherein, if the position of said edge was not detected, said
liquid ejecting apparatus obtains the position of said edge that
was not detected from two positions of said edge that were detected
in the past, and determines said start position or said end position
based on the position of said edge that has been obtained.

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6. A liquid ejecting apparatus according to claim 4,
 wherein, if the position of said edge was not detected, said
liquid ejecting apparatus obtains the position of said edge that
was not detected from the plurality of positions of said edge that
30 were detected in the past and a feed amount by which said medium
was fed from when the positions of said edge were detected, and
determines said start position or said end position based on the
position of said edge that has been obtained.

- 35 7. A liquid ejecting apparatus according to claim 2,

wherein, if the position of said edge was not detected, said liquid ejecting apparatus determines said start position or said end position based on a single position of said edge that was detected in the past and a predicted maximum skew angle of said medium.

8. A liquid ejecting apparatus according to claim 7,

wherein, if the position of said edge was not detected, said liquid ejecting apparatus obtains the position of said edge that was not detected from the single position of said edge that was detected in the past and said predicted maximum skew angle of said medium, and determines said start position or said end position based on the position of said edge that has been obtained.

9. A liquid ejecting apparatus according to claim 8,

wherein, if the position of said edge was not detected, said liquid ejecting apparatus obtains the position of said edge that was not detected from the single position of said edge that was detected in the past, a feed amount by which said medium was fed from when said position of said edge was detected, and said predicted maximum skew angle of said medium, and determines said start position or said end position based on the position of said edge that has been obtained.

10. A liquid ejecting apparatus comprising:

a movable ejection head for ejecting a liquid;

a feed mechanism for feeding a medium; and

detecting means for detecting positions of both edges of said medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the positions of said both edges with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid onto said medium from said ejection head that is moving;

wherein, in accordance with at least either one of the

positions of said both edges that have been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection head that is moving; and

5 wherein, if a position of one edge, of among the positions of said both edges, was not detected, said liquid ejecting apparatus determines said start position or said end position based on a position of the other edge, of among the positions of said both edges.

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11. A liquid ejecting apparatus according to claim 10,

 wherein, if the position of one edge, of among the positions of said both edges, was not detected, said liquid ejecting apparatus obtains the position of said one edge that was not
15 detected from the position of the other edge, of among the positions of said both edges, and determines said start position or said end position based on the position of said one edge that has been obtained.

20 12. A liquid ejecting apparatus according to claim 11,

 wherein, if the position of one edge, of among the positions of said both edges, was not detected, said liquid ejecting apparatus obtains the position of said one edge that was not
25 detected from the position of the other edge, of among the positions of said both edges, and a width of said medium, and determines said start position or said end position based on the position of said one edge that has been obtained.

13. A liquid ejecting apparatus according to claim 1,

30 wherein the liquid is ejected with respect to an entire surface of said medium.

14. A liquid ejecting apparatus according to claim 1,

 wherein said detecting means includes light-emitting means
35 for emitting light, and a light-receiving sensor for receiving

said light that moves in a main-scanning direction in accordance with the movement of said light-emitting means in said main-scanning direction; and

5 wherein the position of said edge is detected based on a change in an output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning direction passing across said edge.

15. A liquid ejecting apparatus according to claim 14,
10 wherein positions of two edges that differ in position in said main-scanning direction are detected based on the change in the output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning direction passing across said edges; and

15 wherein said start position is changed in accordance with one of said positions of the two edges that were detected, and said end position is changed in accordance with the other of said positions of the two edges that were detected.

20 16. A liquid ejecting apparatus according to claim 1,
wherein said detecting means is provided on a movable moving member provided with said ejection head.

17. A liquid ejecting apparatus according to claim 16,
25 wherein, while said moving member is moved in a main-scanning direction,

the position of said edge is detected based on a change in an output value of said light-receiving sensor caused by the light emitted from said
30 light-emitting means that moves in said main-scanning direction passing across said edge, and

the liquid is ejected from said ejection head onto said medium.

35 18. A liquid ejecting apparatus according to claim 1,

wherein said liquid is ink; and

wherein said liquid ejecting apparatus is a printing apparatus that performs printing on a medium to be printed, which serves as said medium, by ejecting the ink from said ejection head.

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19. A liquid ejecting apparatus comprising:

a movable ejection head for ejecting a liquid;

a feed mechanism for feeding a medium; and

detecting means for detecting a position of an edge of said

10 medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the position of said edge with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid with respect to an entire surface of said medium from said ejection head that is moving;

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wherein, in accordance with the position of said edge that has been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection head that is moving;

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wherein, if the position of said edge was not detected, said liquid ejecting apparatus sets said start position or said end position to a position that has been established in advance;

wherein said detecting means includes light-emitting means for emitting light, and a light-receiving sensor for receiving said light that moves in a main-scanning direction in accordance with the movement of said light-emitting means in said main-scanning direction;

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wherein positions of two edges that differ in position in said main-scanning direction are detected based on a change in an output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning direction passing across said edges;

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wherein said start position is changed in accordance with one of said positions of the two edges that were detected, and said end position is changed in accordance with the other of said

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positions of the two edges that were detected;

wherein said detecting means is provided on a movable moving member provided with said ejection head;

wherein, while said moving member is moved in said
5 main-scanning direction,

the position of said edge is detected based on
the change in the output value of said light-receiving
sensor caused by the light emitted from said
light-emitting means that moves in said main-scanning
10 direction passing across said edge, and

the liquid is ejected from said ejection head
onto said medium;

wherein said liquid is ink; and

wherein said liquid ejecting apparatus is a printing
15 apparatus that performs printing on a medium to be printed, which
serves as said medium, by ejecting the ink from said ejection head.

20. A liquid ejecting apparatus comprising:

a movable ejection head for ejecting a liquid;

20 a feed mechanism for feeding a medium; and

detecting means for detecting a position of an edge of said
medium;

wherein said liquid ejecting apparatus repeats an operation
of detecting the position of said edge with said detecting means,
25 an operation of feeding said medium with said feed mechanism, and
an operation of ejecting the liquid with respect to an entire
surface of said medium from said ejection head that is moving;

wherein, in accordance with the position of said edge that
has been detected, said liquid ejecting apparatus changes at least
30 either one of a start position and an end position for ejecting
the liquid from said ejection head that is moving;

wherein, if the position of said edge was not detected, said
liquid ejecting apparatus obtains the position of said edge that
was not detected from two positions of said edge that were detected
35 in the past and a feed amount by which said medium was fed from

when the positions of said edge were detected, and determines said start position or said end position based on the position of said edge that has been obtained;

wherein said detecting means includes light-emitting means
5 for emitting light, and a light-receiving sensor for receiving said light that moves in a main-scanning direction in accordance with the movement of said light-emitting means in said main-scanning direction;

wherein positions of two edges that differ in position in
10 said main-scanning direction are detected based on a change in an output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning direction passing across said edges;

wherein said start position is changed in accordance with
15 one of said positions of the two edges that were detected, and said end position is changed in accordance with the other of said positions of the two edges that were detected;

wherein said detecting means is provided on a movable moving member provided with said ejection head;

20 wherein, while said moving member is moved in said main-scanning direction,

the position of said edge is detected based on the change in the output value of said light-receiving sensor caused by the light emitted from said
25 light-emitting means that moves in said main-scanning direction passing across said edge, and

the liquid is ejected from said ejection head onto said medium;

wherein said liquid is ink; and

30 wherein said liquid ejecting apparatus is a printing apparatus that performs printing on a medium to be printed, which serves as said medium, by ejecting the ink from said ejection head.

21. A liquid ejecting apparatus comprising:

35 a movable ejection head for ejecting a liquid;

a feed mechanism for feeding a medium; and
detecting means for detecting a position of an edge of said
medium;

wherein said liquid ejecting apparatus repeats an operation
5 of detecting the position of said edge with said detecting means,
an operation of feeding said medium with said feed mechanism, and
an operation of ejecting the liquid with respect to an entire
surface of said medium from said ejection head that is moving;

wherein, in accordance with the position of said edge that
10 has been detected, said liquid ejecting apparatus changes at least
either one of a start position and an end position for ejecting
the liquid from said ejection head that is moving;

wherein, if the position of said edge was not detected, said
liquid ejecting apparatus obtains the position of said edge that
15 was not detected from a single position of said edge that was
detected in the past, a feed amount by which said medium was fed
from when said position of said edge was detected, and a predicted
maximum skew angle of said medium, and determines said start
position or said end position based on the position of said edge
20 that has been obtained;

wherein said detecting means includes light-emitting means
for emitting light, and a light-receiving sensor for receiving
said light that moves in a main-scanning direction in accordance
with the movement of said light-emitting means in said
25 main-scanning direction;

wherein positions of two edges that differ in position in
said main-scanning direction are detected based on a change in
an output value of said light-receiving sensor caused by the light
emitted from said light-emitting means that moves in said
30 main-scanning direction passing across said edges;

wherein said start position is changed in accordance with
one of said positions of the two edges that were detected, and
said end position is changed in accordance with the other of said
positions of the two edges that were detected;

35 wherein said detecting means is provided on a movable moving

member provided with said ejection head;

wherein, while said moving member is moved in said main-scanning direction,

the position of said edge is detected based on
5 the change in the output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning direction passing across said edge, and

the liquid is ejected from said ejection head
10 onto said medium;

wherein said liquid is ink; and

wherein said liquid ejecting apparatus is a printing apparatus that performs printing on a medium to be printed, which serves as said medium, by ejecting the ink from said ejection head.

15 22. A liquid ejecting apparatus comprising:

a movable ejection head for ejecting a liquid;

a feed mechanism for feeding a medium; and

detecting means for detecting positions of both edges of
20 said medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the positions of said both edges with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid with respect to an entire
25 surface of said medium from said ejection head that is moving;

wherein, in accordance with at least either one of the positions of said both edges that have been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection
30 head that is moving;

wherein, if a position of one edge, of among the positions of said both edges, was not detected, said liquid ejecting apparatus obtains the position of said one edge that was not detected from the position of the other edge, of among the positions
35 of said both edges, and a width of said medium, and determines

said start position or said end position based on the position of said one edge that has been obtained;

wherein said detecting means includes light-emitting means for emitting light, and a light-receiving sensor for receiving
5 said light that moves in a main-scanning direction in accordance with the movement of said light-emitting means in said main-scanning direction;

wherein positions of two edges that differ in position in said main-scanning direction are detected based on a change in
10 an output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning direction passing across said edges;

wherein said start position is changed in accordance with one of said positions of the two edges that were detected, and
15 said end position is changed in accordance with the other of said positions of the two edges that were detected;

wherein said detecting means is provided on a movable moving member provided with said ejection head;

wherein, while said moving member is moved in said
20 main-scanning direction,

the position of said edge is detected based on the change in the output value of said light-receiving sensor caused by the light emitted from said light-emitting means that moves in said main-scanning
25 direction passing across said edge, and

the liquid is ejected from said ejection head onto said medium;

wherein said liquid is ink; and

wherein said liquid ejecting apparatus is a printing
30 apparatus that performs printing on a medium to be printed, which serves as said medium, by ejecting the ink from said ejection head.

23. A computer system comprising:

a main computer unit;

35 a display device that is connectable to said main computer

unit; and

a liquid ejecting apparatus that is connectable to said main computer unit and that is provided with:

a movable ejection head for ejecting a liquid;
a feed mechanism for feeding a medium; and
detecting means for detecting a position of an edge of said medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the position of said edge with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid onto said medium from said ejection head that is moving;

wherein, in accordance with the position of said edge that has been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection head that is moving; and

wherein, if the position of said edge was not detected, said liquid ejecting apparatus sets said start position or said end position to a position that has been established in advance.

24. A computer system comprising:

a main computer unit;

a display device that is connectable to said main computer unit; and

a liquid ejecting apparatus that is connectable to said main computer unit and that is provided with:

a movable ejection head for ejecting a liquid;
a feed mechanism for feeding a medium; and
detecting means for detecting a position of an edge of said medium;

wherein said liquid ejecting apparatus repeats an operation of detecting the position of said edge with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid onto said medium from said ejection head that is moving;

wherein, in accordance with the position of said edge that has been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection head that is moving; and

5 wherein, if the position of said edge was not detected, said liquid ejecting apparatus determines said start position or said end position based on a position of said edge that was detected in the past.

10 25. A computer system comprising:

 a main computer unit;

 a display device that is connectable to said main computer unit; and

 a liquid ejecting apparatus that is connectable to said main
15 computer unit and that is provided with:

 a movable ejection head for ejecting a liquid;

 a feed mechanism for feeding a medium; and

 detecting means for detecting positions of both
 edges of said medium;

20 wherein said liquid ejecting apparatus repeats an operation of detecting the positions of said both edges with said detecting means, an operation of feeding said medium with said feed mechanism, and an operation of ejecting the liquid onto said medium from said ejection head that is moving;

25 wherein, in accordance with at least either one of the positions of said both edges that have been detected, said liquid ejecting apparatus changes at least either one of a start position and an end position for ejecting the liquid from said ejection head that is moving; and

30 wherein, if a position of one edge, of among the positions of said both edges, was not detected, said liquid ejecting apparatus determines said start position or said end position based on a position of the other edge, of among the positions of said both edges.

26. A liquid ejection method of ejecting a liquid onto a medium, comprising:

a step of detecting a position of an edge of the medium with a sensor;

5 a step of feeding the medium; and

a step of changing, in accordance with the position of said edge that has been detected, at least either one of a start position and an end position for ejecting the liquid from an ejection head that is moving;

10 wherein, if the position of said edge was not detected, said start position or said end position is set to a position that has been established in advance.

27. A liquid ejection method of ejecting a liquid onto a medium, comprising:

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a step of detecting a position of an edge of the medium with a sensor;

a step of feeding the medium; and

20 a step of changing, in accordance with the position of said edge that has been detected, at least either one of a start position and an end position for ejecting the liquid from an ejection head that is moving;

wherein, if the position of said edge was not detected, said start position or said end position is determined based on a position of said edge that was detected in the past.

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28. A liquid ejection method of ejecting a liquid onto a medium, comprising:

a step of detecting a position of an edge of the medium with

30 a sensor;

a step of feeding the medium; and

a step of changing, in accordance with the position of said edge that has been detected, at least either one of a start position and an end position for ejecting the liquid from an ejection head that is moving;

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wherein, if a position of one edge, of among the positions of said both edges, was not detected, said start position or said end position is determined based on a position of the other edge, of among the positions of said both edges.